Spring 2020, Stat 445/545: **Analysis of Variance and Experimental Design**

Instructor: Dr. Yan Lu, yanlu@unm.edu

`https://math.unm.edu/~luyan/stat54520/stat54520.html`

Instructor Office hours: MWF 10:00am-10:40am, or by appointment, SMLC 316

Teaching Assistant: Lidong Wang

TA Office hours: TTr 11:00am-12:00pm, SMLC 344

Class Time/Place: 1:00pm-1:50pm, MWF, Science Math Learning Center (SMLC) 120

Prerequisites: Stat 440/540 Regression Analysis

Text: Applied Linear Statistical Models (Kutner, Nachtsheim, Neter, & Li), 5th ed, data and student solution manual are available at

`users.stat.ufl.edu/~rrandles/sta4210/Rclassnotes/data/textdatasets/CD%20Description.html` (Note, please copy the pdf link, %20 is automatically translated to a blank space to get the correct website)

Reference book: Analysis of Variance, Design and Regression, Applied statistical methods, by Ronald Christensen.

Topics:

Chapters 16–18 Single-Factor ANOVA (about 3 weeks)

Chapters 19-21 Two-Factor ANOVA (balanced design) and Randomized complete block designs (about 3 week)

Chapters 22 Analysis of Covariance (about 1 week)

Chapters 23-24: Unbalanced Factorial Designs and General Multifactor Studies (about 2 weeks)

Midterm Project

Chapter 25 Random and Mixed Effects Models (about 2 weeks)

Chapters 26 Nested Designs, Subsampling, and Partially Nested Designs (about 1 week)

Chapter 27 Repeated Measures and Related Designs (about 1 week)

Review and Final

Computing: R, Rstudio, and Rmarkdown will be used in this class.

R:

`http://cran.r-project.org`

Rstudio:

`https://www.rstudio.com/products/rstudio/download`

To see how to install R and Rstudio in windows, visit

`https://www.youtube.com/watch?v=eD07NznguA4`

for Mac

`https://www.youtube.com/watch?v=GFImMj1lMRI`

R Markdown:

`http://rmarkdown.rstudio.com`

Grading: Homework, 30% (bi-weekly homework); Midterm Project, 30%; Final Exam, 40%. Midterm project is a take-home data analysis report. Topic, requirements and writing instructions will be given in the class. Final is a comprehensive exam given in class at Friday May 15th from 12:30pm-2:30pm.

	Stat 545	Stat 445
A	90%-100%	85%-100%
B	80%-89%	70%-84%
C	65%-79%	60%-69%
D	under 64%	under 60%